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TO: Lisa Vest, Hearing Officer

THROUGH: Virgil Holmes, Director, Division of Water

FROM: Bryan Ashby, Program Manager II, Surface Water Discharges Section

DATE: June 22, 2018

RE: Technical Response Memorandum addressing comments provided regarding the Delaware City Refinery NPDES permit, as public noticed in December 10, 2014, and as provided at a public hearing on March 24, 2015. Settlement Agreement – Delaware City Refining Company LLC

The Technical Response Memorandum (TRM) is organized in the following categories of issues shown in the following Table of Contents.

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I. Overview

This Technical Response Memorandum (TRM) was prepared at the request of the presiding hearing officer to assist in the completion of the Hearing Officer's Report to the Secretary of the Department of Natural Resources and Environmental Control (Department) and aid the Secretary in making the final decision on issuance of the draft Delaware City Refinery NPDES permit. This document represents the Department's response to comments made regarding the draft NPDES permit for the Delaware City Refinery and Power Plant (discussed together as "DCR"), as public noticed on December 14, 2014 and discussed in a public hearing on March 24, 2015.

The vast majority of comments regard various aspects of DCR's cooling water intake structures (CWIS), which have a daily average flow limit of 452 million gallons per day (mgd) and a 12 month moving average flow limit of 303 mgd. In general, non-CWIS comments are in regard to: thermal and chemical pollution from DCR's discharge (Outfall 001), permit requirements for PCBs, Subaqueous Lands regulatory issues, and "other pollution" from DCR.

The permit record, hearing transcript and comments often do not clearly distinguish between "BTA for Impingement" and "BTA for entrainment". For clarity to distinguish between BTA for impingement and BTA for entrainment, this TRM discusses "BTA for impingement" (BTAi) and "BTA for entrainment" (BTAe) under separate headings. In short, the permit requirements for DCR's cooling water intake structures (CWIS) are written to be in conformance with the August 15, 2014 Federal Rule[1] for CWIS (hereinafter "the Rule"). The permit acknowledges intake screens as a possible BTAi (i.e., BTA for impingement only) identified in the Rule. This would be finally determined in the next permit, conditioned upon performance optimization after the screens are installed. Per the Rule, determination of BTAe will be deferred until completion of studies of impingement and entrainment impacts at the facility; however, interim BTAe measures are addressed within the permit.

The NPDES program was established by the Federal Clean Water Act (CWA). Delaware administers its NPDES program under authority delegated by the U.S.E.P.A. Federal Regulations under 40 CFR §123.44 require that the EPA formally object to a NPDES permit if it does not adequately interpret and apply legal requirements. The EPA provided comments on the NPDES permit, as public noticed on Dec. 12, 2014, but did not object to any permit provisions.

DNREC received a multitude of comments through this hearing process. Many of these comments had similar points of concerns. This TRM groups those concerns into different topic areas. Although a specific quote is often used to identify a comment, the responses are intended to address the topic area as a whole.

II. Pre-Hearing and Procedural Comments

[1] 40 CFR Parts 122 and 125, [Docket ID: EPA–HQ–OW–2008–0667, FRL–9817–3], RIN 2040–AE95, "National Pollutant Discharge Elimination System—Final Regulations To Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities", "AGENCY: Environmental Protection Agency (EPA). ACTION: Final rule"; "Federal Register / Vol. 79, No. 158 / Friday, August 15, 2014 / Rules and Regulations", pages 48300-48438; https://www.gpo.gov/fdsys/pkg/FR-2014-08-15/pdf/2014-12164.pdf

1. Freedom of Information Act (FOIA)

Comment – In response to FOIA requests, "DNREC has provided some documents, but has withheld 713 public records."

Response – FOIA requests received by the Department regarding this facility were reviewed within DNREC and after consultation with DOJ, an appropriate response was provided to the requestors. Any documents withheld were consistent with the provisions of Delaware's Freedom of Information Act[2] (FOIA) statute.

2. Settlement Agreements

a. Disagreement between Agreements

Comment – "Settlement Agreement and Draft Permit violate Restart Agreement (2010) conditions that required Best Technology Available."

Response – The December 4, 2014 Settlement Agreement does not violate the May 31, 2010 Agreement Governing the Acquisition and Operation of the Delaware City Refinery. It maintains a similar timeline while changing some elements of procedure to comply with the August 15, 2014 Federal Rule for CWIS. In the 2010 Agreement a preemptive BTA Determination was to be made, prior to needed studies being performed by the facility; which then had five years to refute this determination. In the 2014 Agreement, the facility is given five years to do needed studies, and then a determination is made once all necessary information is collected. In both cases, no BTA implementation would be required until after DNREC reviews all studies and makes a final BTA determination. Prior to the August 15, 2014 Federal Rule for CWIS (the Rule), a BTA determination was required at permit issuance, even if adequate information to make such a determination was not available. This is why a BTA determination was considered to be necessary at the time of the 2010 agreement. The updated Rule however allows facilities time to obtain needed information so that when a BTA determination is made it is more comprehensive. The Settlement Agreement allows for consistency with the updated Rule and contains language which clarifies that to the extent a conflict exists between prior agreements between the Parties and the Settlement Agreement, then the Settlement Agreement supersedes.

b. Settlement Agreement Violates Public Process Requirements

Comment – "This settlement agreement binds DNREC to a pre-determined outcome for the DCR NPDES Permit and prevents the public from effectively and realistically participating in commenting on the draft permit and ultimately helping to shape a better issued permit."

Response - The 2014 Settlement Agreement does not supersede or circumvent the public participation process. There are some permit conditions from the draft permit memorialized in the Settlement Agreement; however, it is explicitly stipulates in the Settlement Agreement that, "The final NPDES renewal discharge permit (the "New Discharge Permit") may vary from the Draft Renewal Permit based on consideration of relevant and applicable comments submitted during the public notice process such as comments from EPA, the Public or DCRC, or response to such comments by DNREC Staff, or as required by law." In the event the final NPDES Discharge Permit differs from the Draft Renewal Permit with respect to items that are contained in the Settlement Agreement, then the Settlement Agreement in its current form becomes null and void and the parties have to reconvene the settlement process. These provisions were explicitly stated in the Settlement Agreement to account for the public notice process and the potential that the final Discharge Permit may differ from the Draft Renewal Permit based on comments submitted from EPA, DCRC, and/or the public.

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[2] 7 Del. Code, Title 29, State Government, General Regulations for State Agencies, Chapter 100, Freedom of Information Act (FOIA), http://delcode.delaware.gov/title29/c100/index.shtml.

c. Violates Endangered Species Act and 40 CFR §125.98(h) with respect to consultation regarding endangered species before public notice

Comments – "The regulations under 40 CFR §125.98(h) state that the Director (USEPA Regional Administrator) or in this case DNREC Director, cannot propose or publish the draft permit, unless it has received the requisite responses from NMFS and USFWS. While this may have happened, the Delaware Riverkeeper Network cannot find any information in the record as constituted by the Draft Permit or the Draft Fact Sheet that indicates this process has been followed, or what changes have been made to the draft to reflect any of these comments.

"However, the Settlement Agreement and draft permit violate Section 9 of the Endangered Species Act (ESA)[3] by failing to follow the process outlined in the Federal Register for compliance with the ESA on the take of endangered species.

The Federal Register publication of the 316(b) Final Rule, EPA (2014: 48380) clarifies that the provisions for compliance with the ESA are unchanged by this regulation.

'Section 9 of the ESA specifically provides that it is unlawful for any person to "take" any endangered species of fish and wildlife except under defined circumstances. The Services (National Marine Fisheries Service or U.S. Fish and Wildlife Service) may provide an exemption to the prohibition on take in one of two ways. Take may be permitted under section 10 of the ESA (16 U.S.C. 1539) or the Services may provide an exemption for take that is incidental to otherwise legal activity through a statement that is included with the Service's' biological opinion developed during Federal agency consultation. (16 U.S.S. 1536(o)) The incidental take statement specifies the terms and conditions necessary to implement reasonable and prudent measures which minimize incidental take.

Nothing in today's rule changes the existing, independent obligations of the facilities subject to this rule under section 9 of the ESA. Unless exempted by an incidental take statement or section 10 permit, facilities have been prohibited from taking (for example, harming or killing) endangered species of fish or wildlife. In order to obtain a section 10 permit, the facility would be required to develop a Habitat Conservation Plan (HCP), which is a mandatory component of an incidental take permit application. The HCP must specify the anticipated effects of the proposed taking, how those impacts will be minimized or mitigated, the alternative actions to the taking that the applicant considered, the reasons for not utilizing those alternatives, and other necessary or appropriate measures that the Secretary may require.'"

Response – 40 CFR §125.98(h) states "The Director must transmit all permit applications for facilities subject to this subpart to the appropriate Field Office of the U.S. Fish and Wildlife Service and/or Regional Office of the National Marine Fisheries Service upon receipt for a 60 day reviews prior to public notice of the draft or proposed permit." The permit application was mailed to National Marine Fisheries Services on October 1, 2014 and the draft permit renewal was place on public notice on December 14, 2014 which would accommodate the 60 day review period accounted for in the Rule. Unfortunately comments were not received from the National Marine Fisheries Services (NMFS) until March 18, 2015 so they were not available to be considered and incorporated into the draft permit prior to notice of hearing. However, their comments are addressed later on in this TRM. As the Refinery's permit application predates the Rule, much of the information that the Rule envisions providing to the NMFS is not included in the application package and is instead required to be collected during the next permit cycle. This limited NMFS in their ability to make detailed site specific comments. Their March 18, 2015 comment letter does clearly lay out the paths to coverage under the Endangered Species Act. Should DNREC be able to effectively address their comments the Refinery would be covered by an incidental take exemption provided through an ESA Section 7 Biological Opinion/Incidental Take Statement. Should NMFS not be satisfied with how their comments are addressed the Refinery may be required to seek coverage for incidental take under an ESA Section 10 permit. This is NMFS's determination to make. Following submission of additional information to NMFS, they certified that they had no additional comment in their August 1, 2017 letter.

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[3] Endangered Species Act of 1973, As Amended through the 108th Congress, http://www.nmfs.noaa.gov/pr/laws/esa/text.htm

3. Public Comment period for NPDES permit

Comment – Various comments requested extension of the comment period, and that no comments are accepted after close of the comment period.

Response – The NPDES permit and Fact Sheet were public noticed on December 14, 2014. Normally, the public comment period would end on January 8, 2015. The Hearing was public noticed on February 18, 2015 and the Hearing was held on March 24, 2015, with attendant opportunities for further public comments.

In response to various requests, the Department did extend the comment period several times, but finally set June 9, 2015 as the date to close the public comment period.

4. DNREC should cede permit issuance to EPA.

Comment – "DNREC needs to step back and request that EPA take lead authority over this permit in order to remove both the actual, and the appearance of, bias and impropriety."

Response – DNREC is the permitting agency and has had full authority to issue NPDES permits since April 1, 1974. The permits that DNREC issues comply with all applicable state and federal regulations. DNREC consulted with EPA when working on the draft permit, particularly regarding parts of the draft permit affected by the Rule, to ensure all permit language was compliant with the new federal regulations. EPA also provided comments[4], but has not objected to any provisions of the draft permit or fact sheet. Absent an EPA objection to the permit that DNREC could not address, there is no reason to relinquish DNREC's NPDES delegation authority.

5. Expired Permit

Comment - Several comments note that the DCR permit is long-expired.

Response - 7 Del. Code, §7201- 6.21.2 Regulations Governing the Control of Water Pollution[5] (RGCWP) provide that a permit remains in effect after its expiration date if, "The permittee has submitted a timely and sufficient application for a new or reissued permit under §6.10 (at least 180 days prior to the permit expiration date); and The Department is unable, through no fault of the permittee, to issue a new permit before the expiration date of the previous permit." The Refinery's met these conditions and as such has been administratively extended. Similar conditions exist in Federal Regulation.

III. Best Technology Available (BTA) for Impingement (BTAi)

The permit requirements regarding both BTAi and BTAe are in compliance with and often direct quotations from federal regulation, accompanied by site specific context.

1. "Allowing the refinery to select the interim BTA option"

Comment – "DNREC erred by allowing the Refinery to select the interim BTA option for impingement and approving that option without following the procedure established by law.

...

'Under today's rule, the Director will review all materials submitted by an existing facility with its permit application to determine appropriate NPDES permit conditions and requirements to minimize impingement mortality and entrainment (EPA, 2014a: 48369).'"

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4 Email dated January 7, 2015 from Mark Smith of EPA Region III to John DeFriece of DNREC.

5 http://regulations.delaware.gov/AdminCode/title7/7000/7200/7201.pdf

Response – The Rule supports and allows for seven different readily available options for meeting BTAi. In Section 125.94 (c) of the Rule it state:

> "BTA Standards for Impingement Mortality. The owner or operator of an existing facility must comply with one of the alternatives in paragraphs (c)(1) through (7) of this section, except as provided in paragraphs (c)(11) or (12) of this section, when approved by the Director. In addition, a facility may also be subject to the requirements of paragraphs (c)(8), (c)(9), or (g) of this section if the Director requires such additional measures."

The permit is written in such a way as to support the use of the method specified in § 125.94 (c)(5) Modified traveling screens. Final selection of this as a BTAi alternative is dependent on the facility installing and operating the screens in compliance with the Rule, and on the results of an optimization study to be performed. Under the terms of the draft permit, installation of the modified traveling screens, design and installation of the fish friendly fish return system, and screen optimization studies are all considered interim BTA for impingement. Final BTAi will be designated in the next permit renewal.

As allowed for in § 125.95(a)(2) of the Rule DNREC is moving forward with allowing necessary data collection to take place during the term of the permit, and not delaying permit issuance until such time as the necessary data is collected.

2. Fish Return

Comment – "It is vital that the channel allows safe return of the fish to an area that will provide minimal opportunity for re-entrapment. This means that the fish must not be exposed to injury or predation in the return channel and that they are returned to a location from which they are not significantly more likely to return to the intake than they would be if they were returned to the Delaware River at some location at least a few hundred feet downstream of Cedar Creek.

Response – The permit requires that, "The Fish Return System will satisfy the provisions of Section 125.92(s) of the 316(b) Rule (as promulgated on August 15, 2014)". That includes "a fish handling and return system with sufficient water flow to return the fish directly to the source water in a manner that does not promote predation or reimpingement of the fish, or require a large vertical drop." On June 24, 2016 Cardno, on behalf of Delaware City Refining Company, LLC submitted a permit modification application to accommodate outfall changes necessary for the proposed fish return system. This application describes the proposed fish return system; their description includes in part: "The improved fish return system will include a fish-friendly Hidrostol pump that will move fish from a large sump into a pressurized pipe. This pipe will travel approximately 6,500 feet to a nearby tidal creek (Dragon Run)." The location of return is below the cooling water intake and a short distance from the Delaware River.

Comment – "DNREC erred by not defining the fish return system in the permit and by not requiring the fish return to the Delaware River."

Response - Section 125.92(s) of the Rule states "The Director may approve of fish being returned to water sources other than the original source water, taking into account any recommendations from the Services with respect to endangered or threatened species." Although design specifications for the fish return system were not detailed in the draft permit, the draft permit does provide that the fish return system must satisfy the provisions of Section 125.92(s) of the 316(b) Rule. Therefore, the fish return system must meet all Section 125.92(s) requirements for permit compliance to be achieved.

Since issuance of the draft Permit, on June 24, 2016 Cardno, on behalf of Delaware City Refining Company, LLC submitted a permit modification application to accommodate outfall changes necessary for the proposed fish return system. The application places the location of return in Dragon Run Creek, below the cooling water intake and a short distance from the Delaware River. This location will be a much safer point of return than other options previously considered and is allowable under the Rule.

3. Performance Standards

Comment – "DNREC erred in its failure to include performance targets for Modified Traveling Screens."

Response – Screens were well studied by EPA in the development of the Rule. In developing the permit DNREC followed the Rule in its requirement of the Modified Traveling Screens, and in many instances included direct language from the Rule in the permit. The Rule states:

> "A facility must operate a modified traveling screen that the Director determines meets the definition at § 125.92(s) and that, after review of the information required in the impingement technology performance optimization study at 40 CFR 122.21(r)(6)(i), the Director determines is the best technology available for impingement reduction at the site. As the basis for the Director's determination, the owner or operator of the facility must demonstrate the technology is or will be optimized to minimize impingement mortality of all non-fragile species. The Director must include verifiable and enforceable permit conditions that ensure the technology will perform as demonstrated;"

Subsequent to the installation of the modified traveling screens, the draft permit requires a two year optimization study in accordance with the Rule. The optimization study will reveal the conditions under which the screens must be operated and maintained to minimize impingement mortality at the facility. Once those optimization conditions are known, they will be incorporated into the NPDES permit renewal if it is established that modified traveling screens is the final BTA for impingement for this facility.

4. Construction Permit Required for New Screens

Comment – "Title 7 Delaware Code 6003(a)(4) states that "No person shall, without having first obtained a permit from the Secretary, undertake any activity in a way which may contribute to the collection, transportation, storage, processing or disposal of solid waste, regardless of the geographic origin or source of such solid wastes;" 7 Del. C. 6003(b) states that the need for a permit applies to the modification of any equipment, or device or other equipment. The installation of travelling screens at the intake structure at the Refinery constitutes modification of existing equipment used for the collection of solid waste which is defined as 'refuse' at Subparagraph 6002(23). Refuse is further defined as dead animals at 6002(19). Since no permit was issued by DNREC for the installation of the travelling screens, the Refinery is in violation of the Environmental Control Act for not obtaining a permit."

Response – DNREC does not find 7 Del. C. 6003(b) to be applicable to the modified traveling screens, as the screens do not "contribute to the collection, transportation, storage, processing or disposal of solid waste". The screens filter incoming water, and prevent impingement by relocating fish.

Comment – "Subaqueous Lands Permit: DNREC failed to acquire the necessary Subaqueous Lands permit for the installation of the Hydrolox screens and therefore violated Delaware's Subaqueous Lands Act in the installation of Hydrolox screens. In accordance with Title 7 Delaware Code § 7205(d), the Refinery should be required to get all the necessary permits."

Response – The modified traveling screens were installed in the same housing structure that previous screens occupied. There was no direct impact on subaqueous land by the installation of the screens, and no permit was required.

IV. Best Technology Available for Entrainment (BTAe)

1. DNREC should use existing information to determine BTAe

Comment – "Given the well-known devastating and continuing entrainment and impingement impacts on the Delaware River from the DCR's operations and the absence of a rational basis to deviate from DNREC's 2011 pre-notice draft BTA determination and accompanying economic achievability and viability reviews, DNREC must designate closed cycle cooling, or its functional equivalent, as BTA or, at minimum, as interim BTA for both entrainment and impingement at the facility."

Response – As part of the development of the Section 316(b) regulations, EPA did extensive research on intake protection technologies prior to establishing entrainment BTA. This analysis included an evaluation of technologies for the following categories: flow reduction technologies and control measures (including closed-cycle recirculating systems); screening technologies; barrier nets; aquatic filter barrier; offshore intakes; and other technologies and operational measures. Please refer to the "Technical Development Document for the Final Section 316(b) Existing Facilities Rule" (EPA-21-R-14-002), May 2014 available at http://www2.epa.gov/sites/production/files/2015-04/documents/cooling-water_phase-4_tdd_2014.pdf.

EPA did not mandate one specific technology for entrainment to be applied on a nationwide basis, rather allowing permittees to evaluate any technology for application at cooling water intake structures. The application of alternate intake protection technologies is highly dependent on site-specific factors. DNREC does not have all the information required under 40 CFR 122.21(r) that is necessary to make a site specific BTAe determination. 40CFR 125.95 (a)(2) allows for an alternate schedule to be established for collection of that data, if needed. It states: "The owner or operator of a facility subject to this subpart whose currently effective permit expires prior to or on July 14, 2018, may request the Director to establish an alternate schedule for the submission of the information required in 40 CFR 122.21(r) when applying for a subsequent permit (consistent with the owner or operator's duty to reapply pursuant to 40 CFR 122.21(d)). If the owner or operator of the facility demonstrates that it could not develop the required information by the applicable date for submission, the Director must establish an alternate schedule for submission of the required information." DNREC has drafted this permit with a compliance schedule for the facility to collect and submit all required information as allowed in the Rule as stated above.

2. "Transition Provision" in 40 CFR §125.98(g) of the Rule

Comment – "Draft permit ignores the Transition Provision in the 316(b) Final Rule and unnecessarily delays action on entrainment.

DNREC's extensive body of knowledge of the CWIS impacts and technological remedies has been needlessly ignored by the Settlement Agreement and draft NPDES permit, which create unnecessary delays in addressing fish mortality by the Refinery. In the 316(b) Final Rule the EPA provides states with the resources needed for these long-outstanding permits to prevent additional delays in addressing fish mortality by CWIS:

To clarify further, EPA has included a 'transition' provision at §125.98(g) of today's rule that makes it clear that for any facility that has submitted a permit application before the effective date of the regulation, the Director may select the best approach to development and implementation of the next permit. These provisions are intended to avoid any unnecessary delay in recently submitted permit applications or draft permits (EPA, 2014a: 48369)."

Response – The paragraph Rule prior to the one cited state: "If the Director has made a BTA determination for entrainment before the effective date of the rule, and substantially the same information was already submitted and considered by the Director in making that determination, under § 125.98(g) the Director may proceed with the Determination of BTA without requiring the owner to submit the information required in § 122.21(r)." DNREC does not find that it has substantially the same information already submitted. It would be premature and inappropriate to disregard components of the Section 316(b) regulations and render a BTA determination without following the process established by the federal regulations where DNREC has determined that all of the 122.21(r) requirements are necessary to evaluate entrainment controls, and has inadequate information to make to final determination. As provided for in §125.98(g), DNREC selected an approach which allows for collection of the most current, relevant, and applicable information prior to making a BTAe decision.

Comment – "The record before DNREC, including its own 2011 pre-notice draft BTA determination, the accompanying economic achievability and viability reviews, and the DCR's entrainment impacts on the Delaware River's aquatic lifeforms, overwhelmingly demonstrates that DNREC should act to make a sufficiency determination as allowed in 40 CFR 125.98(g) to set closed cycle cooling or its functional equivalent as the BTA standards for entrainment and impingement at the DCR." (17.12, page 5)

Response – In the 2011 draft permit a preemptive BTA Determination was to be made, prior to needed studies being performed by the facility; which then had five years to refute or confirm this determination through studies and the collection of data. In the 2014 draft permit, the facility is given five years to do needed studies, and then a determination is made once all necessary information is collected. In both cases, no BTA implementation would be required until after DNREC reviews all studies and makes a final BTA determination. Prior to the August 15, 2014 Federal Rule for CWIS (the Rule), a BTA determination was required at permit issuance, even if adequate information to make such a determination was not available; which is why one was required to accompany the 2011 draft permit. The Rule however allows facilities time to obtain needed information so that when a BTA determination is made it is more comprehensive.

3. Economic Impacts for the DCR and for the Community beyond DCR

a. Economic impacts to Community and River, beyond the DCR itself

Comment – "As I have stated, the resources of the Delaware Estuary are resources of the public and DNREC, pursuant to Subparagraph 6001(b)(1) of Delaware's Environmental Protection Act, is charged with protecting the water resources of the State so that they be directed to make the maximum contribution to the public."

Comment – "A DNREC consultant estimated in 2001 that the refinery killed vastly more fish than those taken by commercial and recreational fishing in state waters. Counting egg and larval losses, the Environmental Protection Agency estimated that Delaware City cost the river four times the number taken by rod and reel or net in 2003." (The News Journal, December 11, 2014) We must keep in mind that not only fish eggs, larvae and adults are drawn into the intake structure at the DCRC but all life stages of all aquatic life that live in the water column of the Delaware Estuary."

Comment – "The EPA estimated that the Refinery contributed to the annual loss of fish (age 1 equivalent, all species) by impingement as 1,074,345 and through entrainment to be 71,744,121 (EPA, 2002: B3-51). The annual economic value lost to the Delaware Estuary by the Delaware City Refinery was calculated to be between $81,976 (low estimate) and $169,971 (high estimate) for impingement and between $2,729,606 (low estimate) and $5,642,002 (high estimate) for entrainment (EPA, 2002: B4-13).

Comment – "Fishing and birdwatching are important activities in the Delaware River that provide tremendous enjoyment of our Bayshore, thousands of jobs, and millions of dollars of revenue. For example, University of Delaware study in 2012 found that recreational fishing contributes 3,327 jobs in Delaware at an annual value of $109.3 million. Fish in the Delaware River also support our shorebird population, which in this same study is shown to help support 4,501 additional jobs and add $147.8 million to our state economy for birding and wildlife viewing.

Response – Although estimates may vary, the Refinery and their intake of river water certainly has an impact on fish in the Delaware River. That impact on fish can have an impact on recreation, the fishing industry and other businesses that are tied to fish. This is why the permit includes studies to quantify that impact as well as technology studies to help in determining the best way to address that impact.

b. Hydrolox Screens and Entrainment

Comment – DCR states, "The Hydrolox screens will be approximately 112 inches wide with small mesh openings of 0.25 inches x 0.3 inches."

"Specifically, the Draft Permit establishes 'interim' BTA requirements for entrainment, including the deployment of the Hydrolox screens ... ."

"Third, the Hydrolox screens are rotated continuously, moving any fish away from the screens after only very brief intervals. The design and operation of many existing screen systems require that screens will be stationary

for hours at a time, which means that fish can become trapped and subject to repeated impingement against the, screens."

Response – Modified traveling screens are not in and of themselves considered BTA for entrainment. However, modified traveling screens do have the potential to reduce entrainment and as such are considered one of the interim BTA measures for entrainment until a final BTAe decision is made. Any reduction in entrainment due to the modified traveling screens is dependent on numerous variables, including but not limited to screen size, bucket formation, water intake velocity, and rotation speed. The screen optimization study will work to optimize those factors within their control, and additional study will determine what if any entrainment reductions the screens provide.

c. BTA Is CCCS, Public Comments

Comment – "Other options are available. Less fisheries harmful cooling systems such as closed loop cooling should be implemented."

Comment – "It is time to reduce the fish kill to the least possible, which can be done by switching to 'The Best Technology Available' BTA, which is switching from a harmful outdated once through cooling system to a proven less harmful cooling system called a closed loop cooling. The fish kill can be reduced by 90% or better by using a closed loop system because the closed loop system require 90% less water intake which directly reduces the fish kill by 90%. It is a proven solution."

Comment – "The Proposed DCR Permit Obligations Do Not Achieve BTA."

Response - EPA has determined that there is no single technology that is BTA for entrainment at existing facilities. Rather, BTA for entrainment is comprised of a process for a site-specific determination of entrainment mitigation requirements at existing cooling water intake structures. The Rule establishes a detailed specific framework for determining BTA entrainment control requirements. It identifies "what information must be submitted in the permit application, prescribes procedures that the Director must follow in decision making and factors that must be considered in determining what entrainment controls and associated requirements are BTA on a site-specific basis." Installation of cooling towers was not adopted as a presumptive BTA for impingement or entrainment at existing facilities.

This is demonstrated in the Executive Summary of the Rule, which states:

> "With regard to entrainment, this rule contains a national BTA standard that is a process for a site-specific determination of entrainment mitigation requirements at existing CWIS. The entrainment provision reflects EPA's assessment that there is no single technology basis that is BTA for entrainment at existing facilities, but instead a number of factors that are best accounted for on a site-specific basis."

For existing facilities, the permitting authority is to establish BTA standards for entrainment for each intake on a site-specific basis. These standards will reflect the permitting authority's determination of the maximum reduction in entrainment warranted after consideration of the relevant factors as specified in 125.98(f). The application components at 40 CFR 122.21(r)(2) through (r)(13) provides the permitting authority with the necessary information to render a decision on impingement and entrainment. This final permit action contains a schedule for submission of all these application components that have not yet been addressed.

The Department agrees that closed-cycle cooling is a technology which minimizes the withdrawal of cooling water as compared to a once-through cooling system. However, supports the Rule requirements in 40 CFR 122.21(r)(2) through (r)(13), which requires a holistic analysis of many factors including non-water quality and other environmental impacts in order to determine the BTA. A final BTA will be determined in the next permit cycle after all the application components at 40 CFR 122.21(r)(2) through (r)(13) are submitted and reviewed.

d. "BTA is CCCS or equivalent 90% reduction", per DNREC in 2011 draft BTA Determination

Comment – "We ask for a minimum of 90% reduction in cooling water intake from the 303 MGD established in the 2010 Restart Agreement, or 90% reduction in fish impingement and entrainment, as per the 2011 draft permit and BTA determination."

Comment – "Given the well-known devastating and continuing entrainment and impingement impacts on the Delaware River from the DCR's operations and the absence of a rational basis to deviate from DNREC's 2011 pre-notice draft BTA determination and accompanying economic achievability and viability reviews, DNREC must designate closed cycle cooling, or its functional equivalent, as BTA or, at minimum, as interim BTA for both entrainment and impingement at the facility.

Comment – "The vast majority of fish killed at DCR are killed as the result of entrainment. The Draft NPDES permit issued by DNREC gives DCR 4 ½ years to study ways to reduce fish entrainment, only requiring action, maybe, in 5 years. But in June 2011, DNREC issued a pre-notice draft and BTA determination that already identified that the best technology available (BTA) for addressing entrainment at DCR is closed cycle cooling. DNREC's analysis included a determination that closed cycle cooling was both technically and economically feasible; 4 ½ years of additional study is not needed."

Response - In the 2011 draft permit a preemptive BTA Determination was to be made. This determination was prior to needed studies being performed by the facility and allowed the Refinery five years to gather additional data to assist in making a final BTA determination. In the 2014 draft permit, the facility is given five years to do needed studies, and then a determination is made once all necessary information is collected. In both cases, no BTA implementation would be required until after DNREC reviews all studies and makes a final BTA determination. Prior to the August 15, 2014 Federal Rule for CWIS (the Rule), a BTA determination was required at permit issuance, even if adequate information to make such a determination was not available; which is why one was required to accompany the 2011 draft permit. The Rule however now allows facilities time to obtain needed information so that when a BTA determination is made it was more comprehensive.

e. Heat Recovery

Comment – "Installing waste heat recovery systems will reduce the fish kill, convert waste heat to electricity or other use, create jobs, reduce the facility's carbon footprint and possibly earn carbon credits for the refinery, thereby benefiting all who live in Delaware. It would benefit the citizens of Delaware and the refinery in many ways. The refinery is in an ideal position to implement waste heat recovery technology because of the massive amount of heat created and wasted."

Response – A variety of factors are taken into consideration when determining the Best Technology Available. The studies required in the permit will take these and other factors into consideration, and the BTAe will be based on a comprehensive evaluation of that information.

4. Mitigation and Restoration

Comment – "Permit does not consider environmental impacts or mitigation."

Comment – "Any new permit ultimately issued for the Delaware City Refinery should not only reflect the best technology available, in this case closed cycle cooling, but should include mitigation and restoration obligations to make up for the years of illegally and needlessly inflicted harm."

Response – The draft permit recognizes additional information is required to fully assess environmental impacts and requires appropriates studies be done.

5. Disproportionate impacts for fragile species

Comment – "DNREC erred by allowing disproportionate impacts for fragile species.

"The 316(b) Final Rule for the selection of modified traveling screens as the interim BTA measure requires that

their use is optimized for non-fragile species (EPA, 2014a: 48433, 48434). Fragile species are defined in 40 CFR 125.92(m) as:

Fragile species means those species of fish and shellfish that are least likely to survive any form of impingement. For purposes of this subpart, *fragile species* are defined as those with an impingement survival rate of less than 30 percent, including but not limited to alewife, American shad, Atlantic herring, Atlantic long-finned squid, Atlantic menhaden, bay anchovy, blueback herring, bluefish, butterfish, gizzard shad, grey snapper, hickory shad, menhaden, rainbow smelt, round herring, and silver anchovy.

In addition, Section C.1.d.x of the draft permit allows the refinery to identify additional species that could be listed as fragile as part of Source Water Baseline Biological Characterization Data. This renders the purpose of an Impingement Optimization Study irrelevant, as the Refinery will be able to ignore any species that the Modified Traveling Screens kill in substantial amounts.

Many of the listed "fragile species" are known to be impinged at the Refinery and are important target species for protection due to their "depleted" status by the Atlantic States Marine Fisheries Commission (Berger 2015) and their value as forage fish that support the aquatic chain. Modified Traveling Screens as the Interim BTA for impingement in the draft permit disproportionately places fragile species at risk and is an inappropriate remedy for the Refinery CWIS"

Response – The Rule recognizes the impracticality of having standard for protection of fragile species on a national platform as site specific conditions and national occurrences can significantly impact these species. However they do allow for the Director to establish site specific controls. The preamble to the rule states:

> "EPA is aware of limited success in flow reduction and behavioral deterrent systems in protecting fragile species. However, there are no demonstrated and available technologies for industry as a whole to address fragile species. EPA has long recognized these species as having low survival rates under the best of conditions, and established different mechanisms to address these in today's final rule. Today's BTA for impingement mortality allows the Director to establish site-specific controls under § 125.94(c)(9) to address fragile species."

At this time we do not have sufficient information to establish site-specific criteria as provided for. The current Interim BTA of installing Modified Traveling Screens and a fish-friendly fish return is a step in the right direction. It is vastly more protective of fragile species than the current screen system which is infrequently rotated, uses a high powered spray to remove fish from the screens, and discharges fish to an open air, cement lined fish return. However, 40 CFR 122.21(r)(4)(xi) states in part: "For the owner or operator of an existing facility, a list of fragile species, as defined at 40 CFR 125.92(m), at the facility. The applicant need only identify those species not already identified as fragile at 40 CFR 125.92(m)." With the information provided in the studies required by the permit, and with further identification of fragile species as required by the Rule, the Department will have more information next permit cycle in order to determine what if any additional protections may be necessary for fragile species.

6. Implementation

a. Compliance schedule

Comment – "Permit should specify the projected schedule of milestones: Section C.1 of the draft permit also allows the Refinery to 'submit plans detailing a projected schedule of milestones and how it will effectuate the studies, reports, and monitoring requirements ... ' within six months of the permit effective date. Instead, we ask that these be incorporated into the permit as an enforceable permit condition and should be subjected to public notice and public comment on the permit."

Response – The permit clearly cites the data needs identified in the Rule, and required by the permit, and sets a deadline for a complete submission at 180 days prior to permit expiration. The permit has the requirement for a schedule to be submitted and the requirement for an annual report in the permit so that DNREC is able to track the facilities progress in collecting the necessary data. However, the timing of interim data collection steps is

largely immaterial as long as a complete, 316(b) compliant, permit renewal application can be submitted in a timely manner.

Comment – "All Interim Measures Should be Implemented Immediately.

The Draft Permit (Page 30) has provided three progressive dates of May 31, 2015, June 30, 2016 and June 30, 2017 to install Modified Traveling Screens on the three intake structures. The Delaware Riverkeeper Network cannot identify any legitimate basis for such an extended schedule, since this less than desirable approach is only classified as 'interim.'"

Response – The Modified Traveling Screens have been installed as a part of the interim BTAi. This schedule was negotiated as part of a Settlement Agreement between the Refinery and DNREC and it is far in advance of what would be required by the Rule alone. Under the Rule the Refinery could have pushed to wait until after the studies required under the rule were complete and BTA for entrainment was determined before even considering if these screens were even necessary to be installed. As such these screens are being installed at least 5 years prior to being required. The installation is spaced out as the Modified Traveling Screens to be installed are located at the cooling water intake. The facility relies on a steady stream of cooling water to for effective operation of the plant. Due to the temperature differential of the water, less cooling water is required in the cooler winter and early spring months. This lower volume need allows the facility to take one of its three cooling water intake bays out of service with minimal fear of negatively impacting cooling water supply to the facility in order to install the new modified traveling screens. Given the limited timeline available for installation and the possibility of unforeseen issues that may arise through procurement and installation of these screens, a schedule of one new bay installation per year was selected.

b. Implementation by DNREC

Comment – "DNREC has a poor track record for maintaining an up-to-date NPDES permit program. EPA described the extent of the problem:

As of the end of Fiscal Year 2013 (through September 30, 2012), 12 of DNREC's major permits were expired representing a 57% backlog of the major permits universe, and 23 minor permits were expired representing a 49% backlog of the minor permit universe (EPA, 2015a: 7).

With the substantial backlog in NPDES permits, how can the public have confidence in DNREC that the next NPDES permit will be promulgated in a timely manner? DNREC's track record in keeping to a reasonable time schedule in the execution of NPDES permits does not inspire confidence. Delays in setting targets are unnecessary, unreasonable, and result in 'kicking the can' to a future permit that may take an extremely long time for DNREC to produce."

Response – The Surface Water Discharges Section continues to work towards eliminating its NPDES permitting backlog, in spite of the limited funding and staffing available to this program. The detailed reports required by this permit will likely be beyond the scope of our Section's expertise. As such we will be coordinating with DNREC'S Fish and Wildlife and Watershed Assessment, the United States Environmental Protection Agency, National Marine Fisheries Services, and other cooperating agencies to ensure a timely and thorough review of the renewal application and associated studies. As previously referenced, both the draft 2011 BTA and permit and the current draft permit renewal allow for five years of studies prior to the final BTA determination being made. Therefore, either approach pushes a final BTA determination until the next permit renewal.

c. "Robust scientific rigor and peer review required"

Comment – "We thank DNREC for requiring peer review at numerous stages in the process, including changes to entrainment study protocol and annual reports in Section C.1.a.4 of the draft permit. While this does add an additional step for the Refinery, we see it as essential to guaranteeing the integrity of the consultant's work, particularly in study design and implementation."

Response – Regular peer review throughout the project is intended to help identify any issues that may arise and allow time to resolve those issues prior to final data submission. Through this requirement we anticipate the final product will be more thorough.

d. Interim study results should be publicly available.

Comment – "We support the provisions in Section C1 of the permit that require collected data to be turned over to DNREC upon request and annual reports submitted on March 1 of each calendar year. However, we feel such transparency does not go far enough and we ask that DNREC amend the permit to provide clear direction to the Refinery that all study results (preliminary or final) for impingement, entrainment and/or the fish return system be provided to the state and made available for public inspection on a quarterly basis."

Response – Review of raw data is imperative in a complete review of the reports as they are submitted. Likewise, review of raw data during a study can provide valuable insight into its progress. Due to the complexity and the timeliness needed in reviewing of an ongoing project DNREC has left the interim review of data to a third party to consolidate and provide to the Department as an Annual Report. Should further review be warranted, DNREC retains the option of require additional information be provided. Based on a comment from the Refinery, to be addressed later in this document, DNREC is amended this condition to allow for either submission of an Annual Report or submission of raw data on an annual basis. However, over-analysis and the drawing of conclusions based on a small subset of a study's data, can be misleading and promote bias. We do not find that submission of data on a more regular basis would provide any tangible benefit, it would be a drain on facility and Department resources, and could promote bias

e. Flow Reduction Claims

1) 33% Reduction

Comment – "The only BTA for entrainment included in this draft permit is a 33% reduction of flow to 303 million gallons per day calculated on a 12 month rolling average (which the December 5, 2014 letter from DCR to DNREC says will reduce entrainment and impingement rates by a similar amount) and 4½ years of analysis to determine other strategies that can/should be implemented at the facility in future years. But DNREC has already determined that BTA for entrainment at DCR is closed cycle cooling which will result in a 90% reduction of the fish kills at the facility - another 4½ years of study by DCR, and then follow up consideration of the data by DNREC, with still yet additional time for implementation, is not needed nor is it supported by the record."

Response – DNREC has made no final determination regarding the best technology available for this site. Prior to the new 316(b) rule, a BTA determination was required to accompany permit issuance regardless of the level of information available for making that determination. The previous draft permit had an accompanying draft BTA. The prior draft BTA, similar to the current permit, recognized the gaps in information available, and allowed the facility 4 ½ years to do studies to provide DNREC with all necessary information so that DNREC could then make a final BTA decision.

2) Effluent Recycle

Comment – "The design parameters of the Effluent Recycle Project should be clarified in the permit with sufficient detail to demonstrate that compliance with this component of the permit will reduce entrainment."

Response – The Effluent Recycling Project adds treated effluent from the wastewater treatment plant to the cooling water intake system. This will reduce the amount of river water intake needed to for cooling water purposes at the facility. As intake volume decreases there is less opportunity for impingement and entrainment.

f. Enforcement

Comment – "While we understand the Department's desire to obtain compliance with the NPDES permit voluntarily, as allowed under 7 Del. C. § 6019, the past five years have demonstrated that the Department's

pursuit of voluntary compliance has been unsuccessful. Pursuant to 7 Del. Amin. Code §7201-6.14.2, 'The violation of any effluent limitation or of any other condition specified in the permit is a violation of 7 Del. C. Ch. 60, and the Act and is grounds for enforcement as provided in 7 Del. C. §§ 6005 and 6013, for permit termination or loss of authorization to discharge pursuant to the permit, for permit revocation and reissuance, or permit modification, or denial of a permit renewal application.' (emphasis added).

Under 7 Del. Admin. Code § 7201-6.15, a NPDES permit 'shall provide for and ensure compliance.' Due to the facility's history of non-compliance the Center asks that the Department deny the renewal application of the Delaware City Refining Company's NPDES permit until the facility demonstrates how it will come into compliance with the terms of its NPDES permit.

If the Department chooses to renew the facility's permit application, a schedule of compliance, pursuant to 7 Del. Admin. Code § 7201-6.17, should be included in the new permit to ensure such compliance. In addition, the Center suggests that the Department include strong enforcement provisions in the permit that incorporate mandatory civil penalties if the Delaware City Refining Company violates the terms of its NPDES permit. This will ensure that the facility is held accountable for its non-compliance.

Under the Clean Water Act, 33 U.S.C. § 1342(a)(2), 'the Administrator shall prescribe conditions for such permits to assure compliance...including conditions on data and information collection, reporting and other such requirements as he deems appropriate.' It is our belief that additional conditions are needed to ensure that the Delaware City Refining Company complies with its NPDES permit.

Response – The Delaware City Refinery has had numerous incidents of non-compliance. The Department keeps close track of these incidents and takes enforcement action as necessary. The frequency, severity and environmental impact of the violations steering the level to which the enforcement action rises to, and what if any penalty is collected. Since the issuance of their current permit DNREC has taken enforcement against the Refinery for NPDES violations fifteen times. Those enforcement actions have included different mechanisms including Notice of Violations, Administrative Orders and Civil Judicial Actions and have included significant penalties.
However, the Refinery also has a history of identifying non-compliance at their facility and promptly reporting those issues to the Department as required in their permit. They have a history of resolving incidences of non-compliance and taking steps to prevent similar instances of non-compliance from occurring in the future. Outside of those incidents they have been cited for, the Refinery has a long history of being in compliance with their NPDES Permit. The Department cannot deny a NPDES permit without preparing a Notice of Intent to Deny and citing good cause for denial of the permit. The Refinery has demonstrated their ability to operate within the bounds of their permit the vast majority of the time; their incidents of non-compliance do not provide sufficient cause to deny their permit application.

V. Endangered Species – NOAA and References to Those Recommendations

1. NOAA Recommendations

Comment Synopsis – The National Ocean and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS; "NOAA" hereinafter) requested that the permit include several requirements to help reduce impacts on endangered species:

a. 2 mm Mesh Screens

Comment – Screen mesh size should be no greater than 2 mm to ensure that entrainment of most small organisms can be prevented, including benthic invertebrates that form the forage base for both Shortnose and Atlantic sturgeon

Response – The Refinery is required to perform an optimization study on their modified traveling screens, a mesh screen size will be one of the factors to be evaluated. If this study identifies that a 2mm mesh is found to be necessary then it would be utilized.

b. 3" Trash Rack Spacing.

Comment – Additionally, trash rack bars should be spaced approximately 3 inches apart.

Response – The Refinery's trash racks are intended to block large foreign object such as sticks or logs; the current design of the trash racks allows for fish to swim freely into and back out away from the racks. The trash bars currently transect Cedar Creek approximately 200 feet in front of the intake structure, with bars approximately 12 inches apart from each other. Modification of these trash racks to a 3" spacing would result in more debris being captured, possibly negatively impacting flow and causing greater opportunity to impingement.

c. Diversion structures placed near the intake canal mouth.

Comment – In conjunction with screens, diversion structures are recommended to keep juvenile, sub-adult and adult sturgeon from being impinged on the trash bars and Hydrolox screen. The diversion structures can be places near the intake canal to block sturgeon from entering the CWIS. Staff will need to clean and maintain diversion structures on a daily basis, and diversion structures should be designed so that entrapment of fish doesn't to occur.

Response – The Refinery's cooling water intake exists at the end of intake channel that is over 0.8 miles long. The channel is tidally influenced, and has differential settling of sediment. This leads to the development of shoals and other features which break up stream flow and aid in fish mobility out of the channel, effectively acting as a natural diversion structure. DNREC will explicitly add diversion structures as one of the technologies to be evaluated in order to determine their future utility at this site, but at this time do not have sufficient information to require these at this time.

d. Reduce the intake velocity to below 1 ft./sec at all times (0.5 to 0.7 ft./sec is preferred).

Comment – We also recommend reducing the intake velocity to below 1 ft./sec at all times (0.5 to 0.7 ft./sec is preferred).

Response – In a May 2001, Normandeau Associates calculated and average approach velocity to the screens of approximately 0.6 feet per second at full pumping rate, and at mean low tide. The approach velocities under normal operating conditions were therefore less than 0.6 feet per second. In addition, the Refinery has since reduced its average water intake volume. The Refinery dredges the channel on a regular basis to maintain such flow conditions. DNREC will be adding a condition to the permit requiring the Refinery to demonstration flow at the trash rakes, to be calculated using the HEC-RAS hydraulic model and reported monthly.

e. The Fish Return System

Comment – The fish return system should allow monitoring of and safe return of fish to the Delaware River away from the intake channel.

Response – The permit explicitly requires that "The Fish Return System will satisfy the provisions of Section 125.92(s) of the 316(b) Rule (as promulgated on August 15, 2014)." Additionally since the hearing the Refinery has submitted a NPDES Modification Application for the Fish Return Project. This application is being reviewed by DNREC NPDES and Fish and Wildlife staff to ensure that fish are returned safely. The plan calls for the fish to be returned to an area near the mouth of Dragon Run, an area where they will not be re-impinged. The plan describes the system as follows:

> "The system will include a fish-friendly Hidrostol pump that will move fish from a large sump into a pressurized pipe. This pipe will travel approximately 6,500 feet to a nearby tidal creek (Dragon Run). The pipe will be located aboveground and will be supported on saddles or by pipe hangers in the existing sleeper way for the majority of the pipe run. To ensure the fish will be returned to areas with deep enough water to

safely receive the fish, the improved outfall structure (Outfall "501B") will be supported at the end of the pipe run on piles across wetlands and sub-tidal lands."

f. Monitoring Plan

Comment – "The monitoring plan, specifically for ESA listed species, should address impingement at the trash bars, and impingement at the screens, collection in the travelling screens' bucket system, transport via fish return system, and whether they are returned to the river safely in order to accurately account for the level of take that is occurring at the facility. The facility should be required to report this information to us on a pre-determined regular basis (i.e., quarterly, semi-annually, etc.)

Response – The permit requires a two year optimization study be performed on the Modified Traveling Screens. Based on the results of that study, DCR will develop a long-term monitoring strategy.
In addition DCR will work with DNREC's Division of Fish and Wildlife to install a monitoring point near the top of the intake channel to identify tagged Sturgeon. DNREC has an ongoing program to tag and track sturgeon. Sturgeon are caught, measured, weighed, and tagged with an external dart tag and internal PIT tag (microchip) prior to release. Since 1991, nearly 1,900 Atlantic sturgeons have been tagged, ranging in size from 20 to 70 inches. Results of this program continue to provide important information on the Delaware River Atlantic sturgeon population. The installation of a monitoring point near the intake will identify if any tagged sturgeon that exist in the Delaware River actually make it up the 0.8 mile long Cedar Creek.

g. Thermal and chemical impacts of effluent

Comment – "Thermal and chemical impacts of effluent plumes will also need to be addressed, monitored and reported.[6]

Response – Thermal and chemical outputs from the Refinery have been evaluated in the development of the permit limits. All applicable standards have been reviewed and the strictest standard applied.

h. Adaptive Management

Comment – "According to the March 8, 2015 comment letter submitted to DNREC by the National Marine Fisheries Service (NMFS) of the National Oceanic and Atmospheric Administration (NOAA), the permit should include 'provisions that provide for adaptive management so that if critical habitat for Atlantic sturgeon is designated in the action area, recommended measures to reduce impacts to critical habitat can be implemented.' Delaware Nature Society encourages DNREC and the Delaware City Refinery to include a thorough, scientifically based adaptive management plan for the endangered Atlantic and shortnose sturgeon as well as addressing the other comments offered by NMFS.

Response – The designation of critical habitat does not affect land ownership or establish a refuge, wilderness reserve, preserve or other special conservation area. Critical habitat is the specific area on which are found physical or biological features essential to the conservation of the listed entity (e.g., species, subspecies, or DPS) and which may require special management or protection. After reviewing the physical features for successful reproduction and recruitment, identified in this critical habitat listing, DNREC finds it unlikely that this discharge would significantly impact those features. Additionally, DNREC has been in extended consultation with NMFS regarding this permit and they have not raised any concerns regarding the issues of critical habitat.

i. Recommend continued consideration of CCCS

Comment – "As discussed in 2011 in your discussions with DCR, a CCCS was proposed by you as the BTA for the site, and would provide the greatest reduction of volume intake, and thus impingement/entrainment. Less cooling water in the facility would also reduce the flow volume of cooling water out of the facility. Currently, the majority of discharges from the DCR are non-contact cooling water. We recommend the continued

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[6] Sturgeon are stressed at greater than 82°F.

consideration of this type of retrofit for this facility because of the location, overlap with ESA listed species habitat and usage areas, as well as because of the very large intake of water and aquatic life."

Response – The permit calls for the facility to obtain additional data to support the final BTA determination. A Closed Cycle Cooling System is one of the technologies to be studies and DNREC will certainly be considering it carefully as a potential BTA option for this facility.

VI. Other pollution and non-NPDES Permit Issues

1. Air pollution due to intake problems, and dredging

Comment – "(8) The present design of the Refinery cooling system is subject to disruption from weather conditions, tidal conditions, floating vegetation, and other factors. Such interruptions of cooling water supply have repeatedly caused upsets of refinery operations, leading to large releases of harmful regulated air pollutants. Continued operation of the present system requires continued dredging of the intake/fish trap channel ("Cedar Creek"). Such dredging has well-known negative impacts. These and other identifiable impacts should be fully considered in evaluating the present draft permit."

Response – A study of "Non-water Quality Environmental and Other Impacts" is required in the permit and shall look at other impacts including estimates of air pollutant emissions and of the human health and environmental impacts associated with such emissions.

VII. Delaware City Refining Company Comments

1. Part I Conditions C 1 and C.1.a.4 - Submission of Interim Entrainment Data

Comment – "Part I, Conditions C.1 and C.1.a.4 of the Draft Permit would appear to require the Refinery to submit preliminary entrainment data before that data is included in the analysis that forms the basis of the Entrainment Studies under the Section 316(b) Rule, and therefore necessarily before the overall analysis could be subjected to proper peer review. DCRC objects to the requirement to submit "interim" data because such a requirement is not authorized by, nor is it consistent with the structure of, EPA' s Section 316(b) Rule."

Response – Recognizing the administrative burden and other issues that DCRC points out regarding "interim" data, the Department did not include any requirements for submission of "interim" data in the permit. Instead the Annual Report and its established conditions are intended to be the main conduit for DNREC to remain engaged and up to date with the Refinery's activities during the next permit cycle. However, Part I, Condition C.1 does point to DNREC's authority to request and receive information required under the permit should circumstances warrant.

2. *Part I, Condition C.I.a.4 - Peer Reviewer Requirements in the Annual Report*

Comment – "DCRC objects to these proposed conditions because they are inconsistent with the framework imposed through the Section 316(b) Rule. Pursuant to the Section 316(b) Rule, the peer reviewer is engaged to review the compiled entrainment data, and is not involved in reviewing the "work" as it progresses. Further, the Section 316(b) Rule framework does not provide for the peer reviewer to play any role in the entrainment data collection process, including the establishment and review of protocols. Instead, the peer reviewer only becomes involved after the Entrainment Studies have been prepared."

Response – DNREC agrees that inclusion of a peer reviewer in the annual report is above and beyond what is required in the Rule. DCRC and DNREC came to agreement on the use of a peer reviewer being used in this manner as a method of keeping the Department informed while still having an outside party review of study practices and progress without a regularly mandated submission of "interim" data. To alleviate this objection while keeping the Department informed, the permit has been amended to provide DCRC with the option to either provide a peer reviewed annual report or to submit the previous years "interim" data.

3. Part I, Condition B.2 - Effluent Limitation and Monitoring Requirements for Stormwater Outfalls 043, 044, 045, 046, 053, 054, and 055

Comment – "DCRC objects to the Department's inclusion within the Draft Permit of seven new stormwater outfalls (043, 044, 045, 046, 053, 054 and 055) that have never previously been addressed in any NPDES permit issued to the Refinery. Inclusion of these stormwater outfalls in the Draft Permit is objectionable for multiple reasons, including the following: (a) stormwater "discharges" are not subject to regulation under a NPDES permit where stormwater is not discharged to a regulated receiving water from a point source; (b) there is no "industrial activity" occurring in the area that would trigger the NPDES permitting requirements for stormwater discharges; (c) the stormwater "outfalls" are not subject to sampling because there is no discharge from a discrete, discernible manner; and (d) with respect to stormwater generated in the area comprising the rail loop track and storage-in-transit yard, the stormwater is already subject to the regulatory oversight of New Castle County."

Response – The rail loop is an ancillary operation of the Refinery and subject to regulation as an industrial stormwater source. New Castle County does have a program that addresses post-construction operations at stormwater structures. However, they do not regulate industrial stormwater that authority rests with DNREC. Failure to effectively channelize stormwater does not alleviate the responsibility to maintain its quality and through good housekeeping practices prevent pollutants from discharging to surface water bodies. Likewise an infrequent occurrence of discharge does not alleviate a responsibility to monitor a discharge when it does occur.

4. Part III, Condition A.3. - Duplicative Data Submission Requirements

Comment - DCRC objects to the proposed provisions in Part III, Condition A.3 of the Draft Permit to submit NPDES permit application information in both a hardcopy and a spreadsheet format. The Department's regulations specifically require the submission of a NPDES permit application using a nationally recognized form, which is submitted to the Department in a hardcopy format. By requiring the Refinery to submit an additional copy of the same information, the Department necessarily places an additional burden on the Refinery, which distracts resources from more environmentally beneficial activities. In addition, there is a risk that the repackaging/transfer of the detailed information may result in inconsistent presentation of the original data, and cause or contribute to misinterpretation. Therefore the Refinery requests that the Department delete from the Draft Permit the requirement to submit NPDES permit application information in a spreadsheet format.

Response – In order to effectively review the NPDES permit application information must be submitted in a usable format. Submission in a spreadsheet format allows the Department to sort, categorize and analyze the data provided in order to effectively perform reasonable potential analysis and determine effluent limits for the facility.

5. Part III, Condition A.14 - Sampling and Reporting Sulfides Upstream of the Outfall 601 Wastewater Treatment Plant

Comment – "DCRC objects to the proposed provisions in Part III, Condition A.14 of the Draft Permit to conduct sampling for sulfides upstream of the wastewater treatment plant associated with Outfall 601 because there is no legal or practical justification for requiring such sampling. The Refinery already monitors sulfides at Outfall 601 as a means of demonstrating compliance with the effluent limitations applicable to Refinery operations. Monitoring upstream of the treatment process designed to treat sulfides present in the stream is completely irrelevant to the Refinery's compliance with the effluent limitations imposed at the point of compliance. Moreover, as the Department is aware, the Refinery has not experienced an exceedance of its sulfide limit in over ten years. This compliance record for sulfides has remained unblemished since the installation of wet gas scrubbers as air emission control devices for the FCC and FCU. Therefore, there is no basis for requiring the Refinery to evaluate upstream theoretical potential sources of exceedances that do not exist. Indeed, the Department could justifiably delete the sulfide monitoring requirement at Outfall 601 based on the compliance history."

Response – This condition was included in the Refinery's last permit due to the negative effects seen at the wastewater treatment plant and at the Outfall 601 due to extremely elevated levels of sulfides entering the plant from upstream. Slugs of wastewater from upstream operations have historically caused upsets of the WWTF, and resulting in NPDES permit violations. The intent of the requirement is to prevent discharges that will interfere with, upset or pass through the wastewater treatment facility. This sampling is seen as a necessary measure in ensuring proper operation and maintenance of the wastewater treatment facility, as required in the permit.

6. Part III, Condition A. 11.a - PCB Sampling for Outfall 001

Comment – "Part III, Condition A.11.a of the Draft Permit would require the Refinery to conduct PCB sampling at several outfalls, including Outfall 001, the discharge point for the Refinery's once- through cooling water system. DCRC objects to the Department's inclusion of a PCB sampling requirement for Outfall 001 because it is inconsistent with the requirements of the Delaware River Basin Commission ("DRBC"). The DRBC has concluded that once-through cooling water systems should not be included within a facility's pollutant minimization plan. Indeed, DRBC approved the Refinery's pollutant minimization plan, which did not include a sampling requirement for Outfall 00I in reliance on the DRBC's recognition that the cooling water system would not contribute PCBs to the discharge. DRBC's conclusion and approval of the pollutant minimization plan confirms DRBC's technical assessment that once-through cooling water systems do not contribute PCBs to the effluent; any PCBs that may be identified in the effluent are attributable to ambient conditions in the intake water. Therefore, sampling results for a once- through cooling water system do not provide useful data on reducing PCB loadings to the Delaware River, and instead may provide misleading information. To avoid inconsistency with the DRBC's approach toward identifying and ultimately addressing sources of PCBs to the Delaware River, DCRC requests that the Department delete from the Draft Permit the PCB sampling requirement for Outfall 001."

Response – Outfall 001 is described in the permit to be the "Combined total discharge to the Delaware River. Consists of discharge 101 (which is out of service, as of the permit effective date); discharge 201 (including the discharge from Outfall 601); discharge 301; and discharge 401". It does not consist solely of non-contact cooling water as one might infer from the comment. Additionally the permit requires that samples be taken both at Outfall 001 and the Intake to account for PCBs in river water. Outfall 001 is the confluence of the vast majority of the Refinery's process, storm and cooling water. Sampling at this location is probative. Rather than instituting a more expansive PCB sampling program, PCB sampling was limited to known area of previous PCB contamination on that basis that Outfall 001 would sampled. Identifying a level of PCBs greater than background, plus known contributing sources, at this location does not lead us to any particular source, but it does demonstrate that there is a source present at the Refinery not currently being monitored.

7. Part III, Conditions A.11.a. and A.12.a - Track Back Studies for PCBs and Dioxin/Furans

Comment – "DCRC objects to Part III, Conditions A.11.a and A.12.a of the Draft Permit to the extent that the conditions would require the Refinery to conduct trackdown sampling for all congeners of PCBs and dioxins and furans ("D/F") in the event of an exceedance of water quality standards. The NPDES Permit otherwise requires the Refinery to collect samples for each congener of PCB and D/F at Outfall 601. In the event the Refinery measures an exceedance of PCB or D/F standards, the congener sampling data would allow the Refinery to pinpoint the congener responsible for the exceedance."

Response – As written the trackback study condition in the draft permit was not actionable, and as such it was removed. DNREC retains the authority to require trackback studies as needed and will make that evaluation on a case-by-case basis.

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

Surface Water Discharges Section

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TO:	Valerie Edge, Hearing Officer
THROUGH:	Virgil Holmes, Director, Division of Water
FROM:	Bryan Ashby, Program Manager II, Surface Water Discharges Section
DATE:	July 10, 2018
RE:	Addendum to Technical Response Memorandum addressing comments provided regarding the Delaware City Refinery NPDES permit, as public noticed in December 10, 2014, and as provided at a public hearing on March 24, 2015. Settlement Agreement – Delaware City Refining Company LLC

In an email on July 10, 2018, the Hearing Officer identified that the submitted Technical Response Memorandum (TRM) did not explicitly address all the changes made to the public noticed draft permit. This addendum will go through the draft permit page by page and address all changes, referencing the TRM where applicable.

Throughout:

- In several locations throughout the current draft permit references to other page numbers in the permit and references to special condition numbers in the permit have been updated to reflect the correct number in the current draft permit.
- Throughout the draft permit Outfall "501" has been segregated into two different outfalls "501a" and "501b". 501a is the outfall previously known as 501. 501b is the location of the new fish return. Though a new outfall was anticipated in the previous draft permit the location had not been identified so the new outfall had not yet been included in the draft permit.

Page 1:

- The anticipated Effective and Expiration dates were added. These were left blank in the initial draft. They have been added in based on the currently anticipated schedule, but may be revised in the future if that schedule is altered.
- Previous omission of Outfall 55 as a discharge to Dragon Run Creek was a typographical error.

Page 2:

- Changing the status of the Industrial Landfill and Fly Ash Pond to closed was an update based on the current conditions of the units.

Page 4:

- Switching Latitude for Longitude in the coordinates chart was the correction of a typographical error.

Page 5:

- An updated General Description of Water Flow was provided by the permittee to reflect current conditions at the facility.

Page 7:

- The permittee provided additional information demonstrating the Outfalls 53, 54, and 55 do not regularly discharge to surface water, but instead primarily discharge to on-site storage. Absent discharge to surface water, sampling is not required of these outfalls. To clarify that point additional language was added.

Page 18:

- The requirement to report on the installation status of the Modified Traveling Screens was removed as the screens have already been installed.

Page 19:

- The incidental take paragraph was reworded to reflect that DNREC had completed our consultation with the National Marine Fisheries Service, and to clarify the permittees duty to report incidental take of Atlantic or Shortnosed Sturgeon.

Page 24:

- Paragraph C.1.b.1.f.iii was added to address NOAA concerns regarding monitoring plans (TRM page 18). It provides for optimization and monitoring of the fish return system following the Impingement Technology Performance Optimization Study, but prior to any study results being memorialized in the permit during the next permit renewal.

Page 28:

- C.1.b.2.a,b, and c - The Modified Traveling Screens have been fully installed following the initial public noticing of the permit. These changes update the draft permit to represent current conditions.
- C.1.b.2.d – The fish return paragraph has been updated to reflect current conditions. The requirement to meet the 316(b) Rule and the 18 month timeline remain the same. However, more specifics have been added regarding how the permittee intends to meet the 316(b) performance standard. This addresses NOAA's concern regarding the fish return (TRM page 17).
- C.1.b.2.e – The installation of acoustic monitoring stations helps to identify if endangered sturgeon are present in the permittees intake channel. This addresses NOAA's concern regarding monitoring (TRM page 18).
- C.1.b.2.f – This provides for a velocity calculation to be performed near the permittees cooling water intake. This addresses NOAA's concern regarding intake velocity (TRM page 17).

Page 29:

- C.1.b.2 – Through not noted in the TRM, the requirement for Final BTA Requirements for Impingement was adjusted to address a comment from the Delaware City Refining Company's February 12, 2015 letter regarding the compliance schedule for Impingement BTA. Required studies are meant to be due 54 months after permit effective date. Whereas compliance with BTA Standards for Impingement is not required by the 316(b) Rule until following issuance of a final permit that establishes the entrainment requirements under 40 CFR § 125.94(d).

Page 30:

- The Effluent Recycling Project has been constructed and is in operation presently. The current state of the project was updated in the permit.

Page 31:

- An allowance for state and local permitting was added to the selenium compliance schedule in response to concerns raised by the permittee about the timeline of external entities preventing the permittee from complying with the compliance schedule as previously written.

Page 32:

- Per the NPDES Electronic Reporting Rule, electronic reporting of discharge monitoring reports has been a federal requirement since December 21, 2016. DNREC currently requiring all of our NPDES wastewater treatment plant permittees, including this permittee, to submit discharge monitoring reports electronically.

Page 39:

- Notifications Specific to Manufacturing, Commercial, Mining, and Silvicultural Dischargers is a standard condition that is federally required to be included in our NPDES permits. EPA identified our failure to regularly include these conditions in your last Permit Quality Review, and DNREC has been required to add these conditions into every permit we issue.

Page 50:

- The permittee requested the removal of PCB sampling at Outfall 001 (TRM Page 21). DNREC did not find merit in that request, and retain the sampling. In evaluating that request it was noted that DRBC required PCB sampling and DNREC required PCB sampling were lumped into the same special condition titled "Delaware River Basin PCB Requirements". To clarify the source of the sampling requirement DNREC separated out DNREC required PCB sampling into a new special condition with all the same requirements.
- In response to a comment by the permittee (TRM page 21) DNREC did remove the requirement for Track Back Studies for PCBs and Dioxin/Furans. As written the trackback study condition in the draft permit was not actionable, and as such it was removed. DNREC retains the authority to require trackback studies as needed and will make that evaluation on a case-by-case basis.

Page 54:

- The permittee requested the removal of sulfide sampling in the process area (TRM page 21). DNREC did not find merit in the request. However, DNREC did concede that sampling of an upstream unit would only be required if that unit is discharging to the refinery Wastewater Collection System and made said change.